7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

machinery. At the same time the cost of new machinery and equipment will need to be financed—possibly out of Development Board funds if earlier plans to borrow for this purpose from the International Bank do not materialize.

Government rental of machinery should at best be considered a temporary expedient. It is wasteful, primarily because overhead expenses are high. The transportation of machinery from central shops to the renters tends to be expensive and to expose the machinery to excessive wear and tear. Private and cooperative ownership of machinery should therefore be encouraged. One step in this direction would be to enable the Agricultural Bank to lend money for this purpose on the security of the machinery. In the past the absence of any provision for registering title to such machinery has prevented such loans. Another important measure would be to encourage the establishment of cooperatives for the collective ownership of machinery, especially in the new agricultural areas which are to be opened. At present the producers' cooperative in the Dujaila project owns a number of tractors. Because overhead costs are relatively low it is able to rent them out at lower rate than the AMA while still apparently covering the cost of operation and depreciation.

V. Control of Pests and Diseases

Livestock Pests and Mortality

More effective control of pests and diseases would also materially help to improve yields. This is particularly true of livestock. Because of lack of funds, equipment and trained personnel, no systematic campaigns for eradicating specific groups of diseases have been undertaken. Many livestock diseases, particularly of the parasitic type, are rife. Among the principal livestock diseases are foot and mouth disease; haemorrhagic septicaemia; anthrax; sheep pox; blackleg; parasitic gastritis; tick-borne diseases (anaplasmosis and piroplasmosis); fowl cholera; Newcastle disease; various manges; and dourine. The available staff is wholly insufficient to control, let alone eradicate, any epidemic which might break out. A serious outbreak of disease would endanger the livestock industry of neighboring countries as well as that of Iraq.

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232 The first requisite for an effective campaign against livestock diseases is a larger trained staff. The number of field veterinarians should be increased from 17 to 28 as rapidly as possible. A number of Iraqis should be sent to foreign veterinary schools, preferably in countries where comparable livestock conditions exist, such as India, Pakistan, Egypt or Turkey. Pending the training of Iraqis, it would be advisable to engage a number of veterinarians abroad. The field service should be augmented by trained assistants and dispensers. Graduates of the Abu Ghuraib agricultural school might be recruited for these positions and given a short concentrated course in the practical aspects of veterinary science at the veterinary school at Baghdad, with further instruction at the neighboring clinic, the Veterinary Service Institute and the abattoir. It would be highly advisable to take some of the candidates for such training from the nomadic tribes so that they can later help their own tribes in combatting the hundred and one ailments which beset their livestock. Organization of a competent veterinary field service is likely to prove impossible, however, unless the prevailing pay and other conditions of service are greatly improved.

Secondly, facilities for diagnosis and treatment should be improved. It is suggested that simple regional diagnostic laboratories be set up in all provinces. At present all laboratory work in connection with diagnosis is centered in the Veterinary Service Institute at Baghdad, thus causing much waste of time and effort. Decentralization might begin with the establishment of laboratories in Mosul and Kirkuk to serve the North and in Basra to serve the South. Such regional laboratories should not be established, however, at the expense of the quality of the staff and service of the Institute in Baghdad. Complicated diagnosis would continue to be handled by the Institute which also manufactures sera and vaccines. It would be advisable to reorganize and strengthen the Institute so that it can give adequate support to the veterinarians in the field and make an appropriate contribution to veterinary education. The quality of equipment must be improved and production methods modernized. A qualified foreign expert might be appointed to assist in making the necessary changes.

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There is a great need for systematic remedial and prophylactic treatment to reduce widely prevalent parasitic infections by such means as flock treatment against internal worms, and cattle and sheep dipping against external parasites. A small campaign to control sheep pox and other external ailments was begun at one time, but abandoned because of lack of funds. In the future adequate funds should be set aside to carry out a well-planned campaign of dipping, particularly in the North. This will involve the establishment of dip-tanks at strategic points in relation to the grazing grounds of the herds and flocks, the location to be worked out by a ground survey undertaken by field officers. Another important prophylactic measure would be the establishment of quarantine stations at points used for international trade in livestock.

At present many livestock belonging to the nomadic tribes die from lack of water or exposure to severe weather, either directly or indirectly as the result of lowered resistance to disease. In the severe winter of 1949 about 1,500,000 sheep are said to have died in the mountains of Kurdistan. In the South the waterholes used by the tribes tend to dry up in dry years, thus necessitating great treks to reach water during which many animals are lost. Such losses would be greatly reduced by livestock shelters in the North and more wells in the South. The shelters, which should be built at strategic points on the migration routes, would be primarily for the protection of lambing ewes and would provide emergency feed supplies for migratory flocks. A three-walled mud structure, with a roof and accommodations for shepherds and some feedstuffs, will be sufficient. Although the government has dug some wells for the use of the southern tribes, much more could be done.

Plant Diseases and Pests

The pests and diseases affecting crops have not been as great a problem as those attacking livestock. The locust plague is a periodic menace, but has been kept rather successfully under control in recent years. The systematic distribution of poison bait in hatching areas during the spring has been the most effective method of combating the locust.[9] Since the bait will be scorned when succulent green food is available, it is important also that farmers

[9] The best bait consists of mill-run bran, sawdust, sodium fluorsilicate and water and should be applied at the rate of 14 pounds of wet bait per donum.

7: International Bank N. S-4 (1951) 1952 MH1 Iraq MH1

In any discussion of pests the damage caused by weeds is worth emphasizing again. Poor tillage and the tendency to use idle land as pasture has caused a rapid spread of Bermuda and Johnson grass in the irrigation zone. These pests have actually forced a considerable amount of crop land out of production and have lowered the yield of such summer crops as cotton, maize and sesame.

VI. Improvement in Livestock and Livestock Products

Improvement in both the quality and quantity of livestock production is likely to be of growing importance in the future, particularly since the anticipated rapid increase in public expenditures on development as a whole will create an expanding and more discriminating market for animal products.

In general the types of livestock found in Iraq represent rather hardy animals which, through a process of natural selection, have become fairly resistant to the rigors imposed by a severe climate and inadequate feed supplies. This does not mean that improvements in breeding cannot be effected. At present breeding is largely haphazard and uncontrolled, particularly as to timing and the selection of sires. It is a well-known scientific fact, however, that the evaluation of genetic factors influencing production in any direction—meat, milk, wool, work, and the like—cannot be properly assessed unless the nutritional level is first improved, thus permitting the full genetic development of the livestock to take place. Iraq is a particularly striking illustration of the truth of the old saying that "half the breed goes into the mouth."

One of the best methods of exploring the possibility of improved breeding and the results of better feeding and other livestock practices would be to establish a number of herds and flocks of indigenous breeds of livestock as well as poultry on government farms throughout Iraq. There careful records would be kept to discover for the first time what these animals can really produce with improved feeding, breeding and management. These livestock stations could also provide progeny-tested sires to farmers for

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breeding. Above all, farmers could be brought there to see with their own eyes the benefits of better livestock practices and the value of mixed farming. A start toward establishing such herds and flocks has already been made.

The following expanded program might be carried out over the next few years in different parts of Iraq:

Southern Area:

1. A flock of purebred Arabi sheep should be kept at the government farm at Basra, together with a herd of selected buffalo.
2. A herd of selected buffalo should be established at Amara either on government property or on private property where the owner will cooperate with the government in obtaining the necessary information on breeding, performance, feeding, etc.

Central Area:

1. At Abu Ghuraib Farm the selected flock of Awasi sheep should be more usefully adapted than at present to give information on breed performance, milk production, wool yield, etc. The herd of Jenubi dairy cows should follow a carefully planned program with respect to breeding, feeding and types of management to determine performance, influence of improved feeding, likely foundation dairy strains for country stations, and the like. At present the farm has no clearly defined livestock policy and lacks continuity of policy. This station might also usefully continue its work on Friesians as a town (Baghdad) cow, purely for urban milk supplies. It would be undesirable to continue with more than one imported breed of cows for this purpose, and the use of this breed should be strictly limited to urban requirements.
2. Work should also be done on buffalo in this central area but this can be readily carried out by controlling breeding and management on one or more of the buffalo settlements (e.g. Dora) in the neighborhood of Baghdad.
3. In the central area also, the work on Arab horse breeding should be maintained and expanded on a more realistic basis. The local racing organizations and the Turf Club would probably cooperate readily in a comprehensive breeding scheme to improve the quality of the local horses.
4. Finally, a small farm (300-500 donums) should be purchased in the Diyala province and organized on a mixed

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

farming basis, including crops, horticulture and livestock in its program. From the livestock point of view it should be a demonstration of the production of milk, eggs and poultry under irrigation conditions to meet urban requirements in the Baquba and Baghdad areas; a lesson in improved feeding, breeding and management, and, above all, in mixed farming. [232]

Northern Area:

1. Flocks of Karadi sheep should be established at Nineveh and Bakrajo, a herd of northern black cattle at Bakrajo, and a herd of Sharabi cattle at Nineveh. Improved foundation stock or even purebred sires of the black mountain breed of cattle might be brought in from Turkey.
2. For mule breeding, selected foundation stock (jacks) might be introduced from Cyprus to meet the mountain and hill requirements of this northern area.

Special measures will need to be taken to assist the nomads in improving their livestock. Aside from the veterinary assistants which might be attached to the tribes, it would be desirable to train a few members of each tribe in such a way that they can give advice and assistance on other livestock matters, including the development of better breeds with the help of selected sires procured from the government. Better pasturage is, however, the critical question. In view of the difficulty of increasing the feed supply for the livestock of the nomads in the South, their problem may be best met in the end by converting an increasing number to mixed farming as new areas are irrigated. Some help may be given by investigating the possibility of conserving existing desert forage plants and introducing new drought-resistant grasses and herbs. For the northern nomads better watered natural grazing lands are available. Unfortunately these lands have been badly abused, and, in the Northeast in particular, a considerable portion has been overgrazed so severely that scarcely any palatable forage remains. Regulations to enforce rotational grazing are urgently needed. Reseeding of the worst areas would not be impossible and would certainly reap large dividends. Controlled grazing is particularly necessary to safeguard the scanty forest areas. For this purpose it is suggested that the migration routes for livestock in the North be fixed in consultation with the Forestry Department. [233]

3:Royal Institute of International Affairs U-4 (no date)1954 M1 Middle East
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time, which, prolonged by primitive methods, may interfere with or even prevent autumn tillage and sowings. Because of the low density of population, an improvement in the water-supply of a given area in the irrigated zone usually causes a shift of population from less favoured areas, which consequently go out of cultivation. This tendency is greatly increased by the unstable nature of the rural population, a great part of which have settled to cultivation within the last century and have no lengthy attachment to their locality. Political circles are alive to the need for reform, and recently an attempt has been made to establish small-holders on lands newly introduced to irrigation (for example, on the Abu Ghuraid and Dujaila canals), and to establish co-operative organization. In 1951 a law was passed for the distribution of state land in parcels of varying size to selected settlers, up to 20 per cent of each area to be allocated to graduates of agricultural schools and former members of the police and army, and up to 25 per cent to civil pensioners and unemployed school graduates. An Agricultural and Industrial Bank, formed by the Government in 1936, contributes to the welfare of small landowners by providing cheap credits, though its resources are inadequate for the need.

Livestock

Raising livestock is of major importance both in the internal economy of the country, by providing food, transport and traction, and raw material for essential manufactures, and also in foreign trade. In the period 1948–50 livestock and their products—wool, hides and skins, intestines (casings)—accounted for about 13 per cent of Iraq's total exports excluding oil.

Most of the rural and much of the urban population depends to some extent on animal husbandry for a living, but methods have hitherto been mostly primitive and unsystematic, being semi-nomadic and divorced from crop-raising, with little attempt on the part of the owners to supplement natural feeding except in winter, or to improve the breed or combat disease. Quality and productivity are consequently low. The Government Department of Animal Husbandry, however, is experimenting to improve the breed of cattle, sheep, and mules and the Government controls the importation of animals to safeguard the native stock from diseases from which it is at present free, such as rinderpest and contagious pleuro-pneumonia. By irrigation, water conservation, and control of pasturage a more permanently settled system could be evolved, integrated more closely with the production of crops.

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southern provinces and has been held responsible for sporadic outbreaks of dengue fever. It is also a potential vector of urban yellow fever, although that disease is not reported from this region. Many varieties of Culex mosquitoes have been recorded, but none has been specifically implicated in the transmission of disease. *Culex quinquefasciatus* (— *C. fatigans*) or *C. pipiens* (each a potential vector of *Wuchereria bancrofti*) is present in most areas.

Within recent years extensive mosquito control work has been undertaken by municipal and government authorities, by the oil companies and, during World War II, by the British Expeditionary Forces. The problem is stupendous, involving the improvement and the regulation of the irrigation facilities on which the agricultural economy of the country depends. In 1947, malaria control was first attempted on a nation-wide basis with the creation of an antimalaria service within the Iraqi health organization. Since that date, control operations have been carried on in various highly endemic areas. Depending upon local conditions, they have included antilarval measures, drainage works and residual spraying of the rural villages with DDT preparations. In 1952, a demonstration DDT house-spraying program was initiated in the hyperendemic Tanjero Valley of Sulaimaniya *liwa* (province), in conjunction with the World Health Organization.

FLIES. Flies are prevalent in all parts of the country. Numerous species of MUSCIDAE are encountered, many of which are implicated in the mechanical transmission of intestinal and eye diseases. *Musca sorbens* and *M. domestica vicina* are most frequently incriminated, but *M. tempestiva*, *M. vitripennis* and *M. mesopotamiensis* are also abundant. The larvae of *Fannia canicularis* sometimes cause myiasis in the livestock. The stable fly, *Stomoxys calcitrans*, is almost ubiquitous. At least 22 species of *Tabanus* are recorded, and many local authorities believe that they are involved in the mechanical transmission of anthrax.

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136 Several species of *Chrysops*, including
164 *C. punctifera*, are known to be present.
232 Among the myiasis-producing flies which attack animals, and incidentally man, the most numerous are *Chrysomyia albiceps;* the blow fly, *Calliphora erythrocephala;* the green-bottle fly, *Lucilia sericata;* the horse bot fly, *Gasterophilus nasalis;* the sheep bot fly, *Oestrus ovis;* and the flesh fly, *Sarcophaga hirtipes.*

136 At least 12 species of sandflies are found.
164 They are serious pests and may produce a form of dermatitis in susceptible individuals. The most widespread species is *Phlebotomus papatasii*, the vector of sandfly fever throughout this area. *P. sergenti* is abundant in the central and the southern provinces and in sections of the northern. It transmits cutaneous leishmaniasis and is apparently the only vector in Iraq, although *P. papatasii* is also implicated in adjacent territories. Potential vectors of kala-azar may be present in the northwest, but the disease is almost never reported.

Several species of SIMULIDAE occur in the hilly districts. The biting midge, *Leptoconops mesopotamiensis*, is an annoying pest.

LICE. All 3 species of human lice, *Pediculus humanus corporis, P. humanus capitis* and *Phthirus pubis*, are common, especially among the poorer sections of the population. *P. humanus corporis* is important as the vector of louse-borne typhus and louse-borne relapsing fever, both of which are endemic.

136 FLEAS. The only flea of primary medical
164 importance is the Oriental rat flea, *Xenop-*
232 *sylla cheopis*. It parasitizes the rats and other rodents and is the vector in sporadic outbreaks of murine typhus and plague. The human flea, *Pulex irritans*, and the cat and the dog fleas, *Ctenocephalides felis* and *C. canis*, are plentiful in most areas.

136 BEDBUGS. The bedbug, *Cimex lectularius*, is indigenous. The tropical species, *C. hemipterus*, is frequently encountered in Baghdad, Basra and other cities, but is seldom seen in the rural villages.

600 TICKS AND MITES. Numerous species of

TICKS AND MITES. NUMEROUS SPECIES OF ticks infest the livestock, including *Rhipicephalus sanguineus, Hyalomma dromedarii* and *Haemaphysalis cinnabarina punctata*. *Ornithodorus tholozani* occurs in many localities, and is the vector in sporadic cases of tick-borne relapsing fever. *O. savignyi* is present in the desert areas. The fowl or blue Persian tick, *Argas persicus*, and the castor bean tick, *Ixodes ricinus*, are widespread.

The itch mite, *Sarcoptes scabiei*, is prevalent, especially in the congested urban communities and rural villages. The grain itch mite, *Pediculoides ventricosus*, is a frequent pest in the grain-growing districts.

SCORPIONS AND SPIDERS. Scorpions are common, particularly in the northern provinces. The most dangerous species are *Buthus australis* and *B. crassicauda*. *B. europaeus* is also present. A few deaths from scorpion stings are reported each year, usually among young children or old people. *Scorpio maurus kruglovi* is sometimes encountered in the plains and *S. maurus townsendi* in the Persian Gulf region. The principal poisonous spider in Iraq is *Lycosa tarantula*.

OTHER ARTHROPODS. *Reduvius tabidus* and *R. annulipes* are found in many areas. The "date beetle," a large aquatic species of the family BELASTOMIDAE, is capable of causing serious bites.

Reptiles. Twenty-six species of snakes have been recorded from Iraq, but only 5 land varieties are venomous. Casualties from snake bites are reported occasionally. A large proportion of the fatalities is probably caused by the Levantine or blunt-nosed viper, *Vipera lebetina lebetina*, which inhabits the northeastern highlands from north of Baghdad to the Turkish and the Iranian frontiers. *V. lebetina euphratica* is also seen in some localities. The horned viper, *Aspis cerastes* (— *Cerastes cornutus*), is native to the alluvial plains, while the carpet viper, *Echis carinatus*, is found in limited areas in Diwaniya province. The hoodless cobra, *Naja morgani*, is widely distributed but apparently is rare. The poison-

ous sea snake, *Enhydrina shistosa*, roams the Persian Gulf and the Shatt al Arab. Although it may be dangerous to fishermen, no fatalities are known to have occurred. 136 752 165

Rodents. *Rattus rattus frugivorus* is the rat most frequently encountered in Iraqi dwellings. *R. rattus alexandrinus* is also indigenous, while *R. norvegicus* is present in Basra, Baghdad and the river towns. *Nesokia buxtoni*, *Dipodillus dasyurus* and *Meriones charion* are reported from different localities. Rats are often captured in Baghdad and Basra and examined for evidences of plague, but otherwise little rodent control work is undertaken, except at the time of plague outbreaks. 136 164

Mollusks.* *Bulinus truncatus* (= *B. contortus*), the intermediate snail host of *Schistosoma haematobium*, is found in numerous foci in central and southern Iraq, where pump or gravity flow irrigation is employed. It inhabits the many small and sluggish irrigation canals and the rice fields, borrow pits, marshes and other suitable collections of water, but is strictly seasonal in appearance, being abundant only in the summer and the fall months, from May or June to November. The snails are widespread in Basra, Muntafiq, Diwaniya and Amarah provinces in the south, but are absent from the Shatt al Arab region south of Basra, where breeding is restricted by the salinity of the water. They are more scattered in distribution in the central provinces and practically nonexistent in the north, aside from localized foci around the marshlands of the Mosul area. *Radix lagotis canaliculata*, a vector of *S. turkestanicum* which causes serious infections among the livestock, is found in the rice fields and the marshes of the southern delta. 136 232

The threat of the spread of *Bulinus truncatus*, and subsequently of schistosomiasis, with the expansion of irrigation creates a problem which is of major public health and economic importance to the country. Small-scale snail-control campaigns have been undertaken in the past in Baghdad, Basra and 136 164 744

* See footnote, page 10.

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Diwaniya provinces. In 1949, a co-ordinated control program was introduced by the Iraqi government, and a Bilharzia Section was established within the national health organization. The section initiated a snail survey in the various endemic foci and research on the most effective methods of snail control. It carries on continuous snail destruction work through special units assigned to each of the infected provinces. 136 164 744

Plants. Little precise information is available regarding the prevalence of allergy-producing plants, but numerous weeds, grasses and trees, which have been incriminated in other countries, are present in districts with rainfall adequate to support such vegetation. 137 752

Occasional deaths, primarily among young children, have been traced to the consumption of the raw beans of *Vicia fava*, a prominent food crop throughout this region. The beans are toxic to susceptible individuals in the raw state. Plants of the *Senecio* group grow in sections of the northern highlands. The young green shoots are poisonous and sometimes cause fatalities among the livestock. 137 165 232

Food Sanitation

The government and municipal health authorities are responsible for the enforcement of regulations governing the sanitary quality of foods, meats and milk products, but the degree of enforcement varies in different localities. Health inspectors are charged with the supervision of establishments where foods are prepared or sold, such as foodshops, markets, restaurants and cafés, mineral-water bottling works and date-packing houses. Examinations for the presence of venereal diseases are theoretically required at regular intervals in the case of cooks and barbers, but no tests to detect other infections are carried out. 744

Meat animals are inspected before and after slaughter in the city abattoirs by officers of the government veterinary and health services. All carcasses offered for sale are supposed to bear an official stamp of

approval, but illegal slaughtering takes place in many areas. No effective control is carried out in the rural villages, where the animals are slaughtered locally.

Milk from cows and goats is marketed by large numbers of small producers. Government regulations exist for the sanitary inspection of dairies and the periodic tuberculin testing of cattle. In practice, however, few controls are exercised over the methods of production or the quality of the product. There is only one pasteurization plant in the country. This is located in Baghdad, and is operated by the government's Agriculture Department. It was established primarily for the purpose of supplying pasteurized milk to the child welfare centers, but a small percentage of its output is sold to private customers. Milk is customarily boiled before use, but butter and cheese are often vehicles for the spread of brucellosis and other diseases. Brucellosis is enzootic among the cattle and the goats, and bovine tuberculosis among the dairy herds.

HEALTH SERVICES AND MEDICAL FACILITIES

Health Organizations

Responsibility for the protection of the public health and for the provision of medical care facilities is centralized in the Ministry of Health of the Iraqi government, with headquarters in Baghdad. The Ministry was established in 1952, replacing the former Directorate General of Health in the Ministry of Social Affairs. Under the present organization, the Minister of Health is assisted by a Director General of Health, in charge of health and medical services, and by an Inspector General of Health. The Minister also has jurisdiction over the Royal Faculty of Medicine which administers the Royal Hospital and the Royal College of Medicine in Baghdad.

The functional activities of the Ministry are concentrated in two major divisions—curative medicine and preventive and social medicine—as well as in a number of admin-

ISTRATIVE BRANCHES.
p. 32(A)

63:Simmons et al G-5 (1941-1951) 1954
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An ancylostomiasis section is incorporated in the Department of Endemic Diseases, and a program for the improvement of rural sanitation is being developed by the health authorities. 164 744

OTHER HELMINTH INFECTIONS. A large proportion of the inhabitants harbor one or more types of intestinal worms. Ascariasis predominates in the northern and the central provinces. Heavy infections, often with intestinal obstruction, are common. In the studies made on groups of men of 18 to 20 years of age, as indicated above, ova of *Ascaris lumbricoides* were found in the fecal specimens from 10 per cent of the 125 individuals examined in Baghdad city. In the provinces, ova were detected in fecal samples from 9 per cent of 135 persons from Baghdad, from 15 per cent of 145 persons from Dulaim and from 13 per cent of 309 persons from Diyala. 164 136 742

Enterobiasis, trichuriasis and, to a lesser extent, strongyloidiasis are prevalent. *Trichostrongylus*, a parasite of sheep and goats which sometimes infects man, is widely distributed in the Shatt al Arab region. Infections with the dwarf tapeworm, *Hymenolepis nana*, are numerous. The beef tapeworm, *Taenia saginata*, is often encountered, but not as widely as in Syria and other Arab countries where more raw meat is customarily consumed. The pork tapeworm, *T. solium*, is occasionally observed in the Christian communities. 164 136 232

Hydatid disease is endemic, especially in the central provinces. Stray dogs are numerous and serve as primary reservoirs of infection. In a survey published in 1940,[48] adults of *Echinococcus granulosus* were found in 18 per cent of 123 street dogs examined in Baghdad. Hydatid cysts were seen in the carcasses of 12 per cent of 2,347 sheep and goats slaughtered in the municipal abattoir and in 25 per cent of 223 cattle. 164 136 232 742

Other Infections. Brucellosis is enzootic among goats, sheep and cattle, and sporadic human infections result from the consumption of cheese, *leban* and other unboiled 164 232 758

63:Simmons et al G-5 (1941-1951) 1954
M1 Middle East
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milk products, or from contact with infected animals. From 5 to 97 cases were treated annually in government institutions in the 6 years 1944-49. In the examination of 2,548 blood serum specimens sent to the Wassermann laboratory in Baghdad in 1938,[4] positive agglutination with Brucella antigens was obtained in 6 per cent. *Br. melitensis* was isolated from 5 of the 13 samples from which bacteriologic cultures were made.

Diseases Spread Chiefly Through the Respiratory Tract

Tuberculosis. Tuberculosis is among the most serious diseases in Iraq. In 1944-49, from 3,400 to 6,800 cases of pulmonary and from 1,400 to 3,100 of nonpulmonary tuberculosis were recorded annually. Such figures are of little value in assessing the problem, however, due to inadequate reporting and the shortage of diagnostic and treatment facilities. Local authorities estimate that the prevalence of latent or active infections approximates at least 25 to 30 per cent in many villages in the vicinity of Kirkuk and Basra, and undoubtedly in other areas. Widespread undernutrition and low standards of living, associated with overcrowding and ignorance of the basic principles of hygiene, are factors contributing to the spread of the disease. The death rates are known to be high, but little precise information is available. It is believed that a considerable number of tuberculosis deaths are erroneously attributed to pneumonia and other respiratory infections. Moreover, the inhabitants are often reluctant to admit the presence of tuberculosis in the family due to the stigma customarily attached to the disease. In the decade 1941-50, an average of 760 cases were treated in government hospitals each year, with a fatality rate of about 25 per cent. The maximum number of cases occurred in the group from 16 to 30 years of age.

All types of tuberculosis are encountered. Involvement of the bones or the glands accounts for a large proportion of the non-

p. 39(B)

to 300 patients in residence. A comprehensive leprosy control program is planned for the near future by the Ministry, in co-operation with the World Health Organization. 000 744

Other Infections. Rabies is enzootic among dogs, jackals and other animals. The jackals, the principal reservoir, often invade the villages and the outlying sections of the towns. Human infections occur sporadically: in 1944-49, the recorded cases averaged from 4 to 32 a year. In the same period, from 739 to 1,365 persons were treated annually at the Antirabic Institute in Baghdad. The majority gave a history of having been bitten by rabid dogs. The Institute also prepares rabies vaccine for distribution throughout the country. 232 164 [749]

Anthrax is prevalent among the sheep. From 130 to 225 human cases are reported annually among persons in contact with infected animals, or among individuals working with hides or wool. Tetanus is sporadic: the known incidence totals 130 to 250 cases each year. Tetanus neonatorum is common, especially in the rural areas. Cases of human glanders are seen from time to time. Leptospirosis, or Weil's disease, is occasionally encountered in the southern provinces. However, no evidence of infection with *Leptospira icterohaemorrhagiae* has yet been found among the rats captured in Baghdad.

Diseases Spread by Arthropods

Malaria. Malaria is endemic or hyperendemic throughout most of Iraq. The distribution and the severity of the disease vary with the physiographic features of the different regions and the amount and the type of irrigation. It has always been regarded as a disease of primary importance in the country, but within the last few decades it has become increasingly prominent in the southern provinces due to the expansion of irrigation facilities. The cases of malaria treated in government institutions in the 7 years 1944-50 averaged about 598,800 annually. The case rates in the various provinces, based upon the at- 164 361 164

35: Hooper and Field 3-5 (1934) 1937 MAI Iran MAI
Iraq MHI

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834*
278*

scarlet foliage. The fruit and root-stock of wild rhubarb are collected and employed in medicine; the fruits were official in the "Pharmacopoeia Persica." A decoction of the reddish, triangular-winged fruits is considered a more powerful purgative than that of the rootstock (Aitchison). The fruits are used in Tehran as a vermifuge for horses, and in Hamadan the drug is applied as a poultice for headache. The rhubarb leaves from Isfahan are made into an infusion and used for gonorrhea (C.).

[232]

Rhodymenia sp. (Florideae, Rhodymeniaceae)

لیقا

Lyka, Leeka (Iraq); Chinai-ghasa or seaweed.

Field 31A.

This alga, obtained in northern Iran, is light brown and gelatinous. A decoction is given for coughs. As a substitute for agar-agar, it is emulcent, emollient, and alterative, and may be used as a cultivating medium for bacteria.

Rhus coriaria L. (Anacardiaceae)

سماق

Summāq, Summāq-i-shakki bī hastah (Teh.); Tirsh (Kurd.); Tartak (Hind.); leaves, bark, and fruits.

Achundow; Schl.; Boiss. 2: 4; Post; Ait.; Ph. Ind. 1: 373.

[245]

Field 164, 272; 107 (Iraq); W.H.M.M. 150800; K.B. 335.

[281]

The sumac is a tree cultivated in Khurasan, western Afghanistan, and throughout Central Asia. The leaves have long been used by the Arabs, Turks, Iranis, and in Europe, for dyeing silk and tanning leather. They contain from 15 to 35 per cent of tannin.

[386]

The fruit is exported from Iran and used by Mohammedans in India. It is a small, sticky drupe, the size of a lentil, 5 mm. in diameter, red or green, acid, and astringent to the taste, containing one lenticular, polished, brown seed.

—Mixed with *Punica Granatum* L., sumac is applied to relieve painful gums. The seeds in an infusion are used to acidulate foods (H.F.).

Ricinus communis L. (Euphorbiaceae)

گرچک فرنگی

Garchak farangī (Teh.); Varchak (Ham.); Tochme Kertchec (Schl.); Kurwa (Ar., Iraq); Bedanjir, "willow fig"; castor oil seeds.